REMARKS

Claims 1-10, 13-16, and 18-21 are currently pending. Claims 1, 2, and 15 have been amended, the amendment of which is supported by Applicant's original disclosure, such as page 3, lines 7-19. New claims 19-21 are supported by the Applicant's original disclosure, such as page 5, lines 13-17. It is respectfully submitted that no new matter has been added.

Claim Rejections under 35 U.S.C. 112, first paragraph

The Patent Office rejected claims 1-10, 13-16, and 18 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement because claims 1, 2, and 15 recite a "hard handover in a non-cellular system" and the Patent Office has alleged that there is no mention of a "hard handover in a non-cellular system" in description.

Applicant has amended the claims to no longer recite a hard handover in a non-cellular system.

Accordingly, Applicant requests that the Patent Office withdraw its rejection of claims 1-10, 13-16, and 18 under 35 U.S.C. 112, first paragraph.

Claim Rejections under 35 U.S.C. 102(b)

The Patent Office rejected claims 1-6, 15, and 16 under 35 U.S.C. 102(b) as being anticipated by Chheda, U.S. Patent No. 5,946,621.

A claim is anticipated when each and every non-inherent claim limitation is disclosed, in general, by a single reference. (See MPEP 2131)

Claim 1 recites as follows:

> A method comprising: specifying nodes present within a communication zone of a mobile node; counting a number of overlaps between the communication zone of the mobile node and communication zones for each of the specified nodes; and selecting, as a candidate node for next communication with the mobile node, the specified node for which a largest number of overlaps has been counted.

Claim 2 recites as follows:

> A method comprising: specifying neighbor nodes present within a communication zone of a mobile node; specifying neighbor nodes for each specified neighbor node of the mobile node that are present within a communication zone of a corresponding one of the specified neighbor

> nodes of the mobile node; counting a number of overlaps between communication zones that are within the communication zone of the corresponding one of the specified neighbor nodes of the mobile node for each of the specified neighbor nodes; and selecting, as a candidate node for next communication with the mobile node, the specified neighbor node of the mobile node having a largest number of overlaps has been counted.

Claim 15 recites as follows:

> An apparatus comprising: a wireless transmitter; and a processor operable to specify nodes present within a communication zone of a mobile node which moves among a plurality of nodes dispersedly arranged; count a number of overlaps between the communication zone of the mobile node and communication zones for each of the specified nodes; and select, as a candidate node for next communication with the mobile node, the specified node for which a largest number of overlaps has been counted, wherein the candidate node is selected by the mobile node.

The claimed invention and Chheda provide totally different solutions for totally different problems.

In the node selecting method according to example embodiments of Applicant's invention, the number of overlaps between a communication zone of the mobile node and communication zones for each of the specified nodes is counted. A candidate node is selected for which a largest number of overlaps has been counted.

On the other hand, Chheda discloses that the neighbor set comprises the pilots that could be received with sufficient strength to enable successful communication (column 2, lines 58-59). Chheda relies upon dividing a cell C1, C2 into sectors S1, S2, S3, S4, S5, S6 (see Fig. 1). Chheda discloses, in col. 7, lines 15-17, a pilot strength measurement message is generated any time there is to be a change in the active set; i.e., any time a sector is to be added or dropped. Chheda discloses, in col. 7, lines 25-53, that, for a sector to be considered for a handoff, a candidate sector must have a one-way delay below a threshold.

Chheda discloses, as a second step, in col. 8, lines 32-61, an overlap technique that treats sectors that are common to all of the individual member sets as being more relevant or important than sectors that are common to only one individual neighbor set. Chheda then discloses that sectors are prioritized within the neighbor set of another sector in order of importance therefore

with respect to that sector. "The relative importance of a sector depends not only on proximity information, but also antenna position, antenna direction and shadowing effects."

Chheda's method is not the same as Applicant's claimed method. Chheda discloses, in the abstract, a two-step process in which "the individual neighbor sets of active set members are combined in a manner such that only pilots representing the more important sectors are included in the updated neighbor set" in which sectors are "included in the updated neighbor sets according to the number of individual sets in which they are found **and their priority within those sets**."

Chheda does not disclose or suggest Applicant's claimed subject matter of "selecting, as a candidate node for next communication with the mobile node, the specified node for which a largest number of overlaps has been counted." This is because Chheda selects sectors not only according to the number of individual sets in which they are found but also according to their priority within those sets.

Thus, Chheda does not anticipate claims 1-10, 13-16, and 18.

Claim Rejections under 35 U.S.C. 103(a)

The Patent Office rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Chheda, in view of Rohani, U.S. Patent No. 6,195,342.

Claim 7 discloses as follows: "wherein the predetermined period is changed in accordance with a movement speed of the mobile node."

The Patent Office asserted that "Chheda does disclose 'selecting, as a candidate node for next communication with the mobile node the specified node in the communication zone of which the largest number of nodes have been counted.'

Chheda teaches only about optimizing "neighbor sets".

In col.3, lines 49-55, of Chheda, different sets of nodes in CDMA (active set, candidate set, neighbor set and remaining set) are described.

In addition, Chheda describes the "candidate set" as follows:

"The candidate set comprises pilots that are not currently in the active set, but that have been received by the mobile unit at a strength sufficient to indicate successful communication".

As is clear from this description, Chheda performs the selection of a candidate node for

next communication based on the strength of the pilots, and not based on "the largest number of nodes have been counted" as claimed.

Moreover, Chheda describes that the neighbor set is updated by the BSC, and the updated neighbor set is sent to the mobile unit (see col.3, lines 15-21).

Furthermore, the section of Rohani, column 5, lines 34-46, cited by the Patent Office discloses a frequency that the Extended Hand-Off Message is transmitted by the cell is determined by the traveling speed of the mobile station. Claim 7 depends from claim 5 which recites that the mobile station performs specifying, counting and selecting neighbour nodes at predetermined periods. Rohani, in contrast, provides a teaching for transmitting a message from the cell at a frequency in accordance with the speed of the mobile station and not for specifying, counting, and selecting neighbour nodes by the mobile station.

Thus, the combination of Chheda in view of Rohani does not make obvious claim 7 for this additional reason.

The Patent Office rejected claim 8 under 35 U.S.C. 103(a) as being unpatentable over Chheda, in view of Gross, U.S. Patent No. 6,856,803.

Claim 8 recites as follows: "wherein the predetermined period is changed in accordance with an arrangement density of the specified nodes."

Gross, like Chheda, provides for a complex method of finding candidate nodes for handoff. Gross evidences this in the abstract which discloses "A list of viable handoff terrestrial cell site candidates is then calculated based on the beam pattern, the location and heading of the airplane, the locations of respective beams transmitted from the airplane based on airplane flight date, and the locations of respective cell sites."

Gross, like Chheda, does not disclose or suggest **"selecting, as a candidate node for next communication with the mobile node, the specified node for which a largest number of overlaps has been counted."**

Because neither Gross nor Chheda disclose or suggest **"selecting, as a candidate node for next communication with the mobile node, the specified node for which a largest number of overlaps has been counted,"** any purported combination of Gross and Chheda would fail to teach or suggest this claimed subject matter.

Thus, claim 8 is allowable over Chheda in view of Gross.

The Patent Office rejected claims 9, 10, and 18 as being unpatentable over Chheda, in view of Haas, U.S. Patent No. 6,304,556.

The Patent Office asserted that Chheda does not disclose the specified nodes are mobile nodes and that Haas in column 4, lines 47-56 remedies this deficiency.

Haas in column 4, lines 47-56, discloses as follows:

> The present invention overcomes the drawbacks of previous network protocols through provision of two new protocols, one for routing and one for mobility management, both of which are particularly well-suited for use within ad-hoc networks. The routing protocol is a proactive-reactive hybrid routing protocol-called the Zone Routing Protocol (ZRP) - that allows efficient and fast route discovery in the ad-hoc network communication environment (i.e., large geographical network size, large number of nodes, fast nodal movement, and frequent topological changes).

Haas does disclose finding a route from a source node to a destination node as illustrated in Figure 4. Haas in column 8, line 37, through column 9, line 18, discloses two methods: a cluster head method and a method of distributed mobility management. In the cluster head method, routing occurs from the source node to its cluster head to the destination cluster head to the destination node. In the distributed mobility management scheme, certain nodes in the network assume the mobility management function. This is quite different from Applicant's claimed invention in which numbers of nodes in the communication zones of the mobile node and its neighbor nodes are counted to determine a next node for communication.

Accordingly, claims 9, 10, and 18 are allowable over Chheda in view of Haas for this reason and also because they depend from allowable base claims.

The Patent Office rejected claims 13 and 14 as being unpatentable over Chheda in view of Agrawala, U.S. Published Patent Application No. 2005/0020275.

The Patent Office asserted that Chheda does not teach the specified nodes are uniformly dispersedly arranged and that Agrawala is alleged to teach this difference in paragraph 0031.

Agrawala, in paragraph 0031, discloses as follows:

> FIG. 1 illustrates an embodiment of a wireless multinodal communications system 100 of the present invention. System 100 includes a widely distributed network of wireless communications nodes 102a-102n (collectively referred to herein as "communications nodes

> 102"). As discussed above, system 100 can be implemented in a variety of mobile and/or non-mobile wireless networks, including sensor-based applications. Additionally, communications nodes 102 are positioned in three-dimensional space.

Agrawala discloses nodes transmitting and receiving measurement messages which are exchanged with other nodes. Agrawala does not disclose numbers of nodes in the communication zones of the mobile node and its neighbor nodes are counted to determine a next node for communication.

Accordingly, claims 13 and 14 are allowable over Chheda in view of Agrawala for this reason and also because they depend from an allowable base claim.

Claim Rejections under 35 U.S.C. 103(a)

Applicant's claimed method represents an improvement over the prior art of record where, on page 1, lines 14-23, of Applicant's original disclosure, it was noted that the use of signal strength indicators in the prior art resulted in complicated electronic circuitry or increased manufacturing costs. New claims 19-21 recite that selection occurs without the user of signal strength indicators, thus further distinguishing the claimed invention from Chheda and the other cited prior art. This is because Chheda relies on pilot strength measurement messages (col. 7, lines 24-27), Rohani relies upon pilot strength measurement messages (col. 6, lines 44-48), Gross relies on factors such as beam pattern as well as locations of beams (abstract), Haas relates to routing (abstract), and Agrawala relies upon analyzing measurement tuples to determine a location of nodes.

It is respectfully submitted that the rejections of claims 1-10, 13-16, and 18 under 35 U.S.C. 112, first paragraph, under 35 U.S.C. 102(b) based on Chheda, and under 35 U.S.C. 103(a) based on Chheda in combination with Rohani, Gross, Haas, and/or Agrawala, have been overcome, and it is respectfully requested that the Patent Office reconsider and remove the rejections of these claims. The Patent Office is respectfully requested to favorable consider and allow all of the pending claims 1-10, 13-16, and 18-21 as now presented for examination. An early notification of the allowability of claims 1-10, 13-16, and 18-21 is earnestly solicited.

Respectfully submitted:

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